

**BTH-Cal/EPA Goods Movement Action Plan
Integrating Work Group Meeting
March 30, 2006 - Sacramento**



**Proposed Emission Reduction Plan for
Ports and Goods Movement in California**

Released: March 21, 2006



Air Resources Board
California Environmental Protection Agency

1

Plan to Protect Public Health

- Emissions from ships, trucks, trains, harbor craft, and equipment that move goods
 - Pollutants: diesel PM, NO_x, SO_x, ROG
- Analysis of health impacts today and in future (with growth) from goods movement
- Strategies to reduce emissions and risk
- Economic benefits and costs

2

Community Meetings

- Kickoff meetings on emission reduction plan in Fall 2005, Long Beach & Oakland
- Joint meetings with Cal/EPA & BTH on State's goods movement activities
 - February 6, Wilmington
 - February 22, Commerce
 - February 27, Oakland
 - March 15, Fresno

3

Overview

- December 2005 draft plan addressed ports and *international* goods movement
- March 2006 proposed plan includes ports and *all* goods movement
- Emissions, health impacts, benefits and costs increase with expanded scope
- Regional analyses now provided
- Plan now meets all stated goals

4

**International Goods Movement
Still a High Priority**

- Goods Movement Action Plan: Phase I set multiple air quality goals
- Reducing community impacts from international cargo is a high priority
- Increasing the scope recognizes goods movement as a whole and its contribution to regional air pollution

5

What's New - Health Analysis

- Peer review by 10 experts
- More health endpoints quantified
- Effects from additional sources included
- Qualitative discussion of new mortality studies and contribution of sulfates

6

What's New - Mortality Estimates

Premature Deaths	All Goods (Mar 2006)	International (Dec 2005)
In 2005	2,400	750
In 2020 w/o Plan	1,700	920
<i>Avoided w/Plan in 2020</i>	<i>820</i>	<i>500</i>

7

Change in Health Impacts

- Health impacts attributed to *all* goods movement are substantially greater than for the *international* portion because:
 - Total emissions are much higher
 - More emissions occur near people
- New numbers don't mean air pollution contributes to more premature deaths

8

What's New - Strategies

- New strategy - ARB rule for privately owned diesel trucks
- Revised port truck modernization program
- Potential for ARB rulemaking on ship fuels, shore power, harbor craft
- Key inputs for benefits and costs identified

9

Plan Meets Quantitative Goals

- ✓ Statewide emissions 20-40% below 2001 levels by 2010
- ✓ 86% diesel PM risk reduction statewide
- ✓ Emissions below preliminary South Coast SIP targets for NOx (international portion)
 - 48% reduction from 2015 forecast
 - 67% reduction from 2020 forecast

10

Plan Also Effective at Reducing Regional Emissions: 2001-2020

Percent Emission Reduction (with growth)			
	Diesel PM	NOx	SOx
Statewide	79%	63%	78%
South Coast	78%	61%	80%
SJ Valley	89%	68%	92%
Bay Area	69%	60%	77%

11

Costs and Benefits

- Cumulative cost to implement plan strategies (2006-2020): \$6 to \$10 billion
- Provides \$3-8 in benefits for each \$1 spent on controls

12

▣ New Emission Reduction Strategies

13

Implementation Mechanisms

- Regulatory actions are and will remain the framework for emission reductions
- Incentives, leases, agreements also play a role

14

Cleaner Ships and Fuels at Sea

Emission Level	Percent of Ship Visits		
	2010	2015	2020
30% Lower than Current Standards	20%	50%	40%
Best Available Controls	--	<u>25%</u>	<u>50%</u>
Total	20%	75%	90%

15

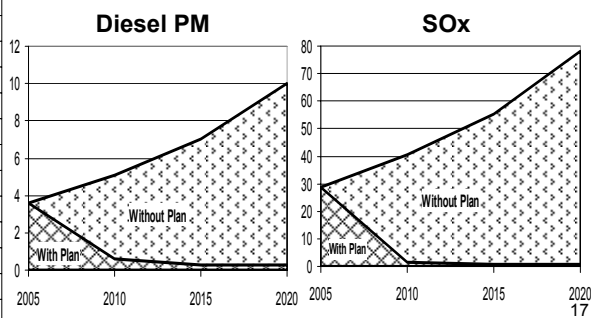
Cleaner Ships and Fuels in Port

- ✓ ARB rule for cleaner auxiliary engine fuel (Adopted December 2005)

At-Dock Technology	Percent of Ship Visits		
	2010	2015	2020
Shore Power	20%	60%	80%
Alternate Measures	<u>20%</u>	<u>40%</u>	<u>20%</u>
Total	40%	100%	100%

16

Plan Impact on Ships In Port 2005-2020



17

Commercial Harbor Craft

- Upcoming ARB rule for existing engines
- Shore-based electrical power in port
- Tighter U.S. EPA or ARB emission standards for new engines

18

Cargo Handling Equipment

- ✓ ARB rule for new/existing equipment (Adopted December 2005)
- 85% PM control on all engines
- Zero or near-zero emission equipment

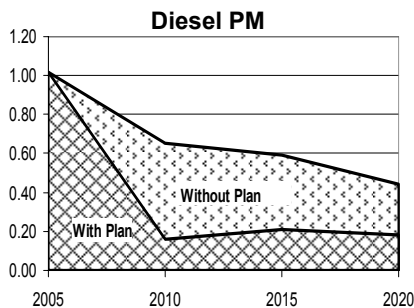
19

Heavy Diesel Trucks

- Upcoming ARB rule for privately-owned trucks
- Port truck modernization program
- Enhanced enforcement of truck idling limits in communities
- ✓ ARB rule for international trucks (Adopted January 2006)

20

Plan Impact on Port Trucks 2005-2020



21

Cleaner Locomotives at Rail Yards by 2010

- All switcher/local yard locomotives upgraded to cleaner models
 - Multiple off-road engines (gen-sets)
 - Diesel-electric engines (Green Goats)
- Alternative fuels offer another approach
- Soot filters possible for existing line-haul engines

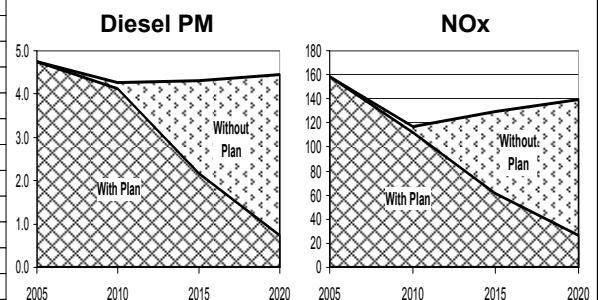
22

Cleaner Locomotives in California Service Post-2010

- Idle limiting devices
- Old engines rebuilt cleaner than when new
- New locomotives at "Tier 3" standards with 90% control of NOx and PM
- Concentrate Tier 3 locomotives in California
 - By 2015: 40% of fleet
 - By 2020: 90% of fleet

23

Plan Impact on Locomotives 2005-2020



24

Next Steps

- Board consideration April 20 in Long Beach
- Fold strategies into State Implementation Plan development for each region
- Continue ARB rulemaking and other actions to reduce emissions and risk
 - Community impacts help set priorities